Dissertation Guidelines

These guidelines provide a framework for thorough presentation of your research. The discussion in some parts of the chapters will differ for quantitative and qualitative research studies. The research questions normally drive selection of the methodological approach(es) and design of the research. **Quantitative research** includes laboratory and field experiments, quasi-experimental studies, secondary data analysis of existing databases, and other studies that collect and analyze numeric data. **Qualitative research** includes ethnographies, phenomenological studies, sociolinguistic or discourse analysis studies, histories, cultural studies, and naturalistic inquiry. **Mixed-methods research** combines both quantitative and qualitative approaches, as is common in case studies, surveys and action research. There are no separate guidelines below for mixed methods. Dissertations using those methods will usually benefit from both the guidelines for quantitative research and those for qualitative research.

These are guidelines only. You must consult with your dissertation chair and committee members to determine the elements of your dissertation as well as the order of those elements.

Dissertations are typically structured as follows:

Chapter 1 Introduction (broad overview of the research)
Chapter 2 Review of the literature (and conceptual framework)
Chapter 3 Methodology
Chapter 4 Results or Findings
Chapter 5 Interpretations, Conclusions, and Recommendations
References
Appendices

Dissertation proposals should include the elements normally found in Chapters 1, 2, 3, and the References of a dissertation.

Both your proposal and dissertation are major written documents that must convey complex ideas. It is your responsibility to present those ideas clearly and concisely. Both documents are also to comply with the style specified in the *Publications Manual of the American Psychological Association (6th Edition).*

This is a suggested guidebook for the preparation of doctoral dissertations reports. Students are advised to visit with their major advisor for the structure and format of their actual dissertation reports.

This dissertation outline is a modified version of the Doctoral Student Handbook of Graduate School of Education of the George Washington University. Thanks to Dr. Mary Futrell and Dr Janet Heddesheimer of The George Washington University, Graduate School of Education and Human Development

CHAPTER 1: INTRODUCTION

This chapter introduces and provides an overview of the research that is to be undertaken. Parts of Chapter 1 summarize your Chapters 2 and 3, and because of that, Chapter 1 normally should be written after Chapters 2 and 3.

Dissertation committee chairs often want students to provide a 5-10 page overview of their proposed "dissertation research" before undertaking a full literature review and detailed development of the methodology. Some may call this a "prospectus" and some may call it a first draft of Chapter 1. Whatever the terminology, the final draft of your Chapter 1 is to include accurate summaries of the final drafts of your Chapters 2 and 3.

It is important to undertake preliminary examinations of the literature before finalizing the "problem" and research questions of your proposed research. (These terms are defined below.) Exploration of the literature sometimes reveals that your initially-chosen focus has already been extensively researched. Contradictory results may offer you an opportunity to do research that clarifies the reasons for the contradictions. If the results consistently support or contradict your expectations, you will probably have to find other research questions that have not yet been well researched.

Note: The items listed below are not intended to be headings in the dissertation, but simply outline the elements that are included in a typical dissertation.

1-A. Overview: Briefly explain why the study is being undertaken and what main questions or foreshadowed problems will be addressed. Do this in a general manner, because it will be done more specifically in the following sections.

1-B. Statement of the Problem: Discuss the problem to be addressed in the research— the gaps, perplexities, or inadequacies in existing theory, empirical knowledge, practice, or policy that prompted the study. The problem may be a theory that appears inadequate to explain known phenomena, the lack of empirical data on a potentially interesting relationship between X and Y, or a common practice that appears ineffective. First state the problem generally, and then state the specifics that your research will address. In quantitative research, the specifics will include the constructs studied.

That your favorite reading program is rarely used in schools does not constitute a problem; widespread impaired reading in inner-city elementary schools is a problem. That your favorite conjectures are not represented in prevailing theory does not constitute a problem; that the theory does not explain applicable phenomena is a problem. That a certain group has been omitted from prior studies can indeed constitute a problem, because theory, policy and practice have not been shaped by knowledge of that group.

Problems usually have underlying causes that may be well-known or the subject of speculation. They also have consequences that are often apparent. You should briefly discuss these causes and consequences.

1-C. Purpose

The purpose of research is to acquire knowledge to address the problem or certain aspects of it. Quantitative research tries to fulfill that purpose by answering questions and/or testing hypotheses. Qualitative research tries to fulfill that purpose by starting with foreshadowed problems, conjectures, or exploratory questions. Mixed-methods research may use both approaches.

1-D.1. Research Questions or Hypotheses
Research questions address problems of the study. Each research question seeks answers to a specific problem situation described in your study. The type of the data and its availability determine the research questions. *For instance, research questions should relate to the conceptual framework.* Each question should address and target a separate problem situation.

A good hypothesis clearly states the expected relationship (or difference) between two variables and defines those variables in operational, measurable terms. The hypothesis (or hypotheses) logically follows the review of related literature and is based on the implications of previous research. A well-developed hypothesis is testable, that is, can be confirmed or dis-confirmed. The qualitative researcher is unlikely to state hypotheses as focused as those of a quantitative researcher, but may have and express some hunches about what the study may show.

1-D.2. Significance of the Study: Discuss the potential significance of the research. Significance comes from the uses that might be made of your results—how they might be of benefit to theory, knowledge, practice, policy, and future research. The potential significance should be based upon your literature review in Chapter 2.

1-E. Conceptual Framework: Briefly summarize the theoretical foundation or conceptual framework(s)

Quantitative Research: *Research Questions and/or Hypotheses*	*Qualitative Research:* *Foreshadowed Problems, Conjectures, or Exploratory Questions*
Present the research hypotheses stated fully—exactly as you state them in Chapter 3.	Present the foreshadowed problems, conjectures, or exploratory questions stated in 3-B below. State them fully—exactly as you state them in Chapter 3.

derived from the literature review that is reported in Chapter 2. Conceptual framework is the theoretical foundations helping us understand the problem situation and its dynamics. It includes your study variables and depicts the established or predicted relationship(s) among these variables. You may adopt an existing conceptual framework or develop your own modified version based on the literature review.

1-F. **Summary of Methodology**: Briefly summarize the methodology of the research that is described fully in Chapter 3.

1-G. **Limitations**: All studies have limitations to their internal validity, generalizability, and applicability. The researcher has no control over limitations. *You have a responsibility to forewarn readers of the limitations and the reasons for them.* Some limitations arise from the delimitations of the study—boundaries to make the study manageable, such as studying only one sub-population of interest, addressing only parts of a problem, or perhaps examining only short-term effects. Some limitations arise from accommodating ethical concerns. Others come from shortcomings in methodology.

1-H. Definition of Terms: Briefly define key terms in the research that might not be well understood by the readers. *Cite a source for each definition derived from the literature*. It is acceptable for this section as well as sections 1-E and 1-G to appear in other chapters of the dissertation.

CHAPTER 2 REVIEW OF THE LITERATURE

Scholarly research is always a leap from the known to the unknown. The literature review and conceptual framework are used to construct a platform of the known from which you jump. Constructed carefully, the literature review and conceptual framework can maximize the chances of your spanning the abyss and reaching something substantive when you land. Constructed carelessly, they can undermine your research.

The literature review should carefully examine prior research and thought relevant to key aspects of your anticipated research. It should be used to inform:

a) The problem to be addressed and its significance
b) The theoretical foundation or conceptual framework
c) The research questions, hypotheses, foreshadowed problems, or conjectures
d) The research paradigm and the methodology

The subsections indicated below are of the process and components of a literature review and not necessarily subheadings of Chapter 2.

2-A. Introduction: Topic(s), Purposes, and Methods of the Literature Review: A literature review usually begins with an indication of the topic(s) to be covered and the purposes of the review. The methods of the review should be briefly described. Indicate the indices and other methods used to search for applicable literature, the terms searched with each, and the years searched (usually the last ten or twenty years, plus key literature from earlier years). A review should address each topic highly applicable to the problem. For problems that are not well researched, the literature review may also address other topics that are tangentially related and might help inform the study. If the literature on a topic is voluminous—it is not uncommon to find more than 100 studies—you should be selective, covering the literature most applicable to the focus of your proposed research, as indicated by the research questions, hypotheses, foreshadowed problems, or conjectures. Consult with your advisor before beginning the literature search to make sure you are covering the topics and years of research that he or she thinks are appropriate.

2-B. Description and Critique of Scholarly Literature: Each major theoretical discourse, conceptual discussion, and empirical study should be described and critiqued briefly. Both the strengths and weaknesses should be identified. For theoretical discourses, indicate the source of the theory, overlaps and disparities with other applicable theories, and whether and how well the theory has been empirically verified. For conceptual discussions, indicate the sources of the concepts, overlaps and disparities with other applicable concepts, and whether and how well the concepts have been empirically verified. For empirical studies (including qualitative ones) indicate the research questions, methodological strengths and weaknesses, results (both their magnitude as well as their statistical significance or extent of cross-verification), conclusions, and implications. *It is important to note that a scholarly review of the literature should focus on primary sources such as refereed journal articles rather than secondary sources such as course textbooks.*

Organizing the written review can be a challenge because the review has several simultaneous

purposes. Often the best strategy is to organize the studies under major topics, theories, constructs, research questions, or methodologies. When a given study addresses more than one organizational category, you might critique it under the first applicable category, and then briefly refer to it under each subsequent applicable category. Alternatively, in the subsequent organizational categories, you might extend the critique as appropriate for that category. When considerable literature falls within one organizational category, it might be organized within second level categories. Otherwise the description and critique of literature might be presented chronologically. Lesser literature sometimes can be described and critiqued jointly, for instance, by indicating, "Several other smaller studies found ..... (Anderson, 1995; Baxter, 1992, Castro; 1999)."

You should avoid creating a biased review that only covers prior literature that supports your predispositions and disregards other literature. Similarly you should consistently critique the literature. Do not ignore weaknesses in studies supporting your predispositions and do not be hypercritical of studies that contradict your predispositions. Failure to conduct a fair-minded review is likely to compromise your research.

2-C. Inferences for Forthcoming Study: Once you have described and critiqued the individual sources, you should analyze and synthesize across them to draw inferences applicable to your anticipated research. The inferences generally should be about:
(a) the problem to be addressed in your research and its significance,
(b) possible research questions, hypotheses, foreshadowed problems, or conjectures,
(c) possible theoretical or conceptual framework to be used
(d) possible research paradigms and methodologies to be used.

The inferences might be stated at the end of each major topic of your review or after all the relevant topics have been discussed. The following questions may generate useful inferences: What does the literature state about the extent of the problem, its underlying causes, where it is most and least severe, and its consequences for theory, knowledge, practice, policy and/or research? How have results of empirical studies varied according to the questions/hypotheses/conjectures that have been addressed? What conceptual frameworks have been applied and with what insights? How might the conceptual frameworks be modified or synthesized to provide new insights to this problem? Which research paradigms and methods have yielded the strongest results and which the weakest results, and why?

2-D. Theoretical/Conceptual Framework for Forthcoming Study (May appear in chapter 3). The problem and research questions, hypotheses, foreshadowed problems, or conjectures were explained above under Chapter 1, but the "theoretical framework" or "conceptual framework" has not yet been explained. These are a theory or set of interrelated constructs that provide perspective or "lens" through which the research problem is viewed and through which the choices about the research will be made. They help narrow down and focus the research. Note that a theoretical or conceptual framework works like a telescope or microscope, and thus it both enhances what you can see and also restricts your breadth of vision. *For that reason, a conceptual framework should be used judiciously to help inform your study rather than to dictate all aspects of it.* Sometimes important breakthroughs occur when a researcher abandons the commonly-used conceptual framework and applies one never before used with a given problem.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

The methods are the procedures used to acquire empirical evidence and analyze it for purposes of answering research questions, testing hypotheses, and examining foreshadowed problems, following up on conjectures, and going forward from exploratory questions. The choice of methodology should be made in light of the literature review and with careful deliberation. Small oversights can

sometimes undermine a long and difficult study. Your committee will help you think through the appropriateness of proposed methods and will probably suggest some refinements.

Your approved proposal is considered a blueprint for research. You are expected to do everything indicated in that blueprint. In experimental research, it is usually expected that no changes will be made unless you encounter unanticipated problems that require modifications. In other quantitative research, such as quasi-experimental, longitudinal and secondary data analysis, additions over and beyond the blueprint may be appropriate to deal with unanticipated opportunities. In qualitative research, the proposal outlines the broad parameters of the study, but usually several details are expected to be decided during the actual data collection and analysis. Changes in the planned research should be made only after consultation with your full dissertation committee. Changes in the collection and handling of data from humans will generally require re-submission for IRB approval.

A few important aspects of the methods cannot be known until after the study has been conducted, such as the response rates from samples, errors or accidents in carrying out the planned methods, and whether the collected data meets the assumptions of the planned statistical analyses. Consequently, whatever is written in the research proposal about methodology may have to be updated some when preparing Chapter 3 of the dissertation.

The subsections indicated below are the components of the methodology and not necessarily subheadings of Chapter 3. Mixed-methods studies may benefit from the guidelines below for both quantitative research and qualitative research.

3-A. Methodology: Briefly re-introduce the problem and provide an overview of the methodological approach.

3-B. Conjectures, or Exploratory Questions: State the conjectures, or exploratory questions that guided the inquiry. The conjectures or exploratory questions can be descriptive, associational, and causal. Qualitative research answers questions in a holistic manner based on all or most of the available information, cross-verifying among several sources of information. The process often involves continual drawing of tentative inferences throughout the ongoing data collection and verifying those inferences with the subsequently-collected data.

3-C. Research Procedures: Describe in detail how the inquiry was undertaken.
Generally the description should be thorough enough that other skilled researchers could approximately replicate your study from the description.
a) Introduce the epistemology that will guide the inquiry.
b) Explain the theoretical perspective that will drive the research, and why it was selected.
c) Indicate the methodology used and why it was selected.
d) Indicate the specific methods used and the justification for them. How were sites, cases, and informants selected? Why? What access did you unsuccessfully seek? Which people perhaps tried to minimize contact with you and which repeatedly sought it out? How did you collect your data? Why? What verification procedures were used in the field? How did you protect against imposing your biases on the data? Describe and append any interview guides, protocols, rubrics used to assist in the data collection.
e) Indicate how you managed your qualitative data. Did you take notes or make audio/video recordings? Was any data not analyzed? Why?
f) Indicate how you analyzed and interpreted your data, making sure the analysis was consistent with the selected methodology. If you inferred themes, explain how. If you coded the transcripts, explain the coding system and checks for coding reliability and validity. How did you analyze the data from the coding? How did you triangulate or otherwise verify findings? How did you interpret the full set of data?

3-D. Human Participants and Ethics Precautions: Summarize potential risks to humans from whom data is collected in your research, and summarize precautions taken to ensure informed consent (when needed) and to minimize the risks to participants in your research. This information can be drawn from the Office of Research and Sponsored Programs - Institutional Review Board (IRB) Submission Form that must accompany your proposal when it is submitted for review and approval. *(Reminder: You must have approval from the Institutional Review Board before beginning data collection from or about humans!)* Also address other ethical issues, such as your possible conflicts of interest and personal biases that could have influenced the research, and how you minimized their effects. After receiving IRB approval, participant recruitment and data collection will begin."

CHAPTER 4: RESULTS or FINDINGS

Data analysis, whether quantitative or qualitative, is intended to summarize a mass of information to answer the research questions, test the hypotheses, examine the foreshadowed problems, and explore the conjectures. The results are generally reported in Chapter 4 and then interpreted in Chapter 5. That is not possible for some modes of qualitative research, where analysis and interpretation are closely intertwined, but even then, the interpretation in Chapter 4 should be at a low level, with higher level, overall interpretations reserved for Chapter 5.

The text should tell a story and teach the result in an order that will be intuitive, interesting, and easily understood by a reader not previously informed about the subject. The text should highlight and emphasize what is most important. It should present more briefly the less-important results. Deciding which results are most important should be based on consideration of: (a) the epistemology, theoretical foundation, or conceptual framework that guided the study, (b) the main questions, hypotheses, or conjectures of the research; (c) the magnitude and statistical significance or cross-validation of results, although when results were strongly predicted and not found, that is also an important finding; (d) the consistency of the results across multiple measures of a construct and across similar constructs; and (e) the potential implications for theory, knowledge, practice, policy, and future research. *Do not bury your reader in a flood of computer-generated statistics*. That is likely to confuse them and make nothing memorable. Important results should generally be shown in a table, chart, or graph, and mentioned in the text. They may also be illustrated with an example or two. Less important results might be shown in a table, but not mentioned in the text, or presented briefly in the text and not shown in a table or graph. If there are less important results whose complex details may be of interest to a few people, put those results in an appendix and have the text briefly reference the appendix.

Standardize key terminology in this chapter and throughout the dissertation. While the use of synonyms for key concepts and variables can minimize irritating repetition, it may also leave readers unsure whether the differing terms represent somewhat different things.

The results need to be reported in sufficient detail to justify any subsequent conclusions and recommendations, which are normally reported in Chapter 5. When you sit down to write Chapter 4, review both the guidelines for it herein and the guidelines below for Chapter 5. Then, as you write Chapter 4, keep a separate list of points that might be discussed in Chapter 5.

4-B. Text: The text should focus on the most important results and devote less attention to the less important results. All results should be indicated, but not necessarily reported individually. For instance, if you did a series of analyses relating the outcomes to demographic characteristics, and there were no statistically-significant results and that was not surprising, it may be preferable to say that in one sentence rather than report each of those individual results. The text should also note patterns and inconsistencies

among the various results. Make sure to briefly report response rates and item-completion rates for each data-collection effort.

4-C. Reporting Statistics: Mean values should almost always be accompanied by their standard deviations, and the "n"s (unless the "n" is consistent for all analyses). For main results, it is desirable to report both the "p values" (of statistical significance) and indications of the magnitude of the results, including mean differences and effect sizes indicated by omega squared, r squared, etc. When results are not significant, discuss whether low power of the statistical analysis may have obscured real differences or relationships.

4-D. Tables, Graphs and Charts: Tables are a good way to present many results in a condensed format, but most people find large tables of data overwhelming, so the text should highlight the most important results. You might also bold the most important results in the table. *Graphs and charts naturally highlight results, if kept reasonably simple and presented well.* In every case, there should be preceding text introducing a table, graph or chart. There may also be text afterward, discussing additional points.

4-E. Raw Data: Raw data for individual participants is usually not reported in the dissertation, unless there were only a small number of participants. Some illustrative quotes are, however, often included. *Make sure that your use of quotes does not violate representations made in your Informed Consent materials.* When the full data set can be printed on a few pages, it may be included in an Appendix. Note: The APA *Manual* indicates that raw data should be kept for at least five years, and that you are generally obligated to make your data available to others for reanalysis.

CHAPTER 5: CONCLUSIONS, INTERPRETATIONS AND RECOMMENDATIONS

This is the chapter in which you give meaning to the results partly by tying them to past theory, research, policy, and practice and partly by extrapolating them to future theory, research, policy, and practice. *Chapter 5 is a time for imagination and boldness, but with scholarly caution*. The interpretations, conclusions, and recommendations must have some basis in your study and are more credible if also based on prior literature.

Chapter 5 is often the weakest one in the first draft of the completed dissertation. Students often are exhausted from the prior work and are rushing to finish Chapter 5 by a deadline. *They usually fail to appreciate that Chapter 5 requires a change in mindset.* Chapters 2, 3, and 4 require the student to progressively narrow the focus and then Chapter 5 requires them to broaden their perspective.

Try to take a break of at least several days after completing Chapter 4 before you start writing Chapter 5. Prepare for writing Chapter 5 by reading the guidelines below; your statement of the problem, significance, and limitations in Chapter 1; your literature review in Chapter 2; your whole Chapter 4; and your notes made when writing Chapter 4 of points that should be included in Chapter 5.

The subsections indicated below are of the common components of Chapter 5 and not necessarily the subheadings of the chapter.

5-A. Summary: Begin with a very brief summary of the problem addressed and the main results of your research. Indicate whether or not the hypotheses were supported.

5-B. Conclusions: The results should be interpreted in light of the full set of results, the applicable literature, the theoretical foundation or conceptual framework used, and the limitations of the study and literature. What do the results mean and what do they not mean? What are the possible causes of

the results? What are the possible consequences of the results?

Conclusions are generalizations that tie back to the existing literature. The conclusions may be about the problem that was addressed or about theory, conceptual frameworks, policy, practice, or research. Conclusions indicate what is now known when your results and the prior literature are considered together. For each conclusion, you should briefly cite the results and literature that support it—either before stating the conclusion or after stating it. Double check each conclusion—while some of your results may support a given conclusion, some of your other results may actually contradict it. If the literature reports results similar to yours from studies with different populations or settings, that can be a basis for cautious generalization beyond your population and setting. On the other hand, if there are no other studies similar to yours, or the other studies' results contradict yours, be careful not to over-generalize your results. Conclusions may be included in the Interpretation section or a separate following section.

When addressing these questions it is useful to distinguish what was learned with reasonable assurance, what was suggested only tentatively, and what was not learned. When the evidence is overwhelming, make your statements authoritatively. When the evidence is only suggestive, add caveats to your statements such as, "The results suggest ...," "It appears ...," or "It could be that ...." Informed speculations are appropriate and useful in the interpretations, as long as you signal the reader that you are speculating.

Interpretation: The interpretation of statistically significant and large results is usually straight forward.
Interpretation of statistically significant and small results is often bungled by doctoral students and even sometimes by mature scholars. Statistical significance only means that
some association or difference probably (with a small chance of error) exists in the population, NOT that it is important. Statistically significant small associations or differences may be of little or no use for organizational or programmatic purposes. On the other hand, if an expensive program or structure has provided little improvement, it may be important to know this so that efforts are made to improve the program or structure, or to redirect the resources to better uses. Finally, the failure to find statistically significant results may be due to low power, and may hide a real association or difference in the population.

While statistical significance is rarely tested in qualitative research, the underlying principles expressed in the above paragraph are applicable. It is important to assess the magnitude of the results. Small results may be useful for refining theory or informing management, but they should not be touted as means of making large improvements in practice.

5-C. Recommendations: Recommendations are suggestions for action that are based upon the results and the applicable literature, with consideration for the limitations of both. The implications can be for modifications or new initiatives in theory, practice, and policy. They can also be for future research—new problems that have become apparent, new research questions raised by the results, and conceptual frameworks and methodologies that seem to hold promise or should be avoided in the future. When formulating implications, try to anticipate implementation difficulties and unintended negative consequences. There always can be multiple implications for a given purpose, and the first implication that you generate may not be the best one. The tone of implication can range from tentative to advisory to exhortative, although the latter is inadvisable in dissertations, because they are considered the work of neophyte scholars.